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spects with Lichens, yet remain without doubt Fungi; and seek, in a word, to draw the new line of separation of the two divisions as sharply as possible.

The title of the new work is "Symbolae licheno-mycologicae. Beiträge zur Kenntniss der Grenzen zwischen Flechten und Pilzen." Cassel; Theodor Fischer. The first number will be published in June; and future ones, each to embrace about two hundred species, will follow annually. As there are no plates, the price will be moderate. Orders may be addressed to the publisher, or otherwise.

EDW. TUCKERMAN.

§ 61. **Unusual Habitat of a *Coprinus*.**—In October, 1880, I received from Framingham, Mass., a quantity of water which contained a large amount of *Coelosphaerium Kützingianum*. The water was placed in a clean glass jar and covered with a pane of glass. I had intended to watch the phenomena attending the purifying of the water, which is generally accomplished in about a fortnight, the slimy bluish-green masses of the algae gradually dissolving and forming a slight deposit at the bottom of the jar, leaving the water clear above. Contrary to my usual experience, the greenish masses did not disappear, and the contents of the jar remained scarcely changed until early in December. At that date, I noticed spots of mould in several places on the top of the rather thick fluid, and, on examination the hyphae were seen to proceed from small black sclerotia sunk just below the surface. The hyphae, in the course of a few days, developed into small *Coprini* scarcely more than a quarter of an inch high. On Dec. 13th, being about to close my laboratory for some time, I was obliged to throw away the contents of the jar before the *Coprini* had matured, and it was impossible to say with certainty what the species was, although it apparently was a small form of what is figured by Brefeld in *Botanische Untersuchungen über Schimmelpilze*, Part 3, as *Coprinus stercorarius*. Although it is possible to raise *Coprini* on slides in a decoction of horse dung, their spontaneous occurrence in water containing algae is unusual, and the appearance of the small *Coprini* as they rose from the surface of the water, which was between five and six inches deep, was very singular. The sclerotia of the *Coprinus* were certainly not in the water when first placed in the jar, as they would easily have been seen in the frequent microscopical examinations of the water made in October; but the fungi were probably produced from spores remaining from a culture of *Coprinus* made in the laboratory about six months before the water was received from Framingham. The jar had previously contained a quantity of growing *Nitella* and was carefully cleaned before the Framingham water was poured into it.

W. G. FARLOW.

§ 62. **Note on *Laminariae*.**—In the BULLETIN for November, 1880, there is a note by Mr. F. S. Collins on a *Laminaria* found on the coast of Maine, and referred by him to *L. longipes*, Bory. In his "Examen des espèces confondues sous le nom de *Laminaria digitata*," Le Jolis states that an examination of the Bory herbarium showed

that the *L. longipes* of Bory was only a form of *L. saccharina*, Lin. Through the kindness of Mr. Collins I have been able to examine specimens of the alga from the Maine coast, and it seems to me that they belong to *L. saccharina*, in spite of the narrowness of the frond and the long stipe. The forms included under *L. saccharina* by American algologists do not with certainty all belong to that species, and it is possible that the broader northern forms belong rather to *L. maxima* (Gunner). But sufficient material has not yet been obtained at different seasons of the year to make the diagnosis certain. In this connection I may mention the Californian specimens at first distributed privately as *L. Andersonii*, but later recognized as the *Lessonia Sinclairii* of Harvey. This is apparently the *Laminaria Ruprechtiana* of Le Jolis (*l. c.*), of which he considers *Lam. saccharina*, var. *angustifolia*, Post and Rupr., Illust. Alg., Tab. XI, *Lam. longipes*, J. Ag. Spec. Alg., and *Lessonia repens*, Rupr., Alg. Ochot., to be synonyms. Since it was ascertained that the species called *L. Andersonii* was the same as *Lessonia Sinclairii* the manuscript name of *L. Andersonii* has been applied by Prof. Eaton and myself to a second species from the California coast which belongs to the digitate division of the genus and not to the section *Saccharinae*.

Cambridge, Mass.

W. G. FARLOW.

§ 63. **Note on the Perforation of Flowers.**—In the vicinity of Ithaca, N. Y., the flowers of *Dicentra Canadensis* are all perforated, year after year, as described by a correspondent of the BULLETIN* some years ago. Last spring, after a tiresome watch, I succeeded in capturing the malefactor, which, in this case, proved to be one of our very common humble-bees (*Bombus Virginicus*, Oliv.†). The holes were cut in the manner described by the writer above referred to, the bee beginning at or near the bottom of the flower-cluster, and ascending when visiting the flowers normally. Flowers of the common blue violet, *Viola cucullata*, were not infrequently found with reniform holes cut in their spurs, but the author of the mischief was not detected.

The general impression seems to be that short-tongued humble-bees are responsible for most of the perforations like these, though the hive-bee has been shown to perforate flowers in a few instances, and it certainly is not above frequently using those made by its larger relatives.

So far as I know, other insects have never been charged with perforating flowers for their nectar, and Mr. Darwin says that "no insects except bees, with the single exception of wasps in the case of *Tritoma*, have sense enough, as far as I have observed, to profit by the holes already made."‡ Last year, while studying the flowers of *Ribes Cynosbati*, I noticed on one plant many which were perforated near the base with round holes about 1.5 mm. in diameter. After a while I succeeded in detecting a white-faced hornet (*Vespa maculata*, L.) in the act of cutting these holes with its mandibles, and thus ob-

*Vol. iii, p. 34. †Kindly identified by Mr. E. T. Cresson.

‡'Cross and Self-Fertilization' (Amer. ed.), p. 427.